Claims:

1. An apparatus for wetting and drying test specimens, the apparatus comprising:

a test chamber;

a lamp capable of generating UV radiation in the test chamber;

a first dispenser adapted to connect to an associated liquid source, the first dispenser being disposed in the test chamber;

a controller in communication with the first dispenser for controlling the dispenser; and

a specimen support disposed in the test chamber for supporting an associated test specimen, wherein the specimen support is disposed in relation to the lamp such that radiation emitted from the lamp contacts the associated specimen supported by the specimen support, wherein the specimen support is disposed in relation to the first dispenser such that liquid dispensed from the first dispenser contacts the associated specimen supported by the specimen support;

a first temperature sensor disposed in or adjacent the test chamber;

a second temperature sensor disposed in or adjacent the test chamber;

a multiple blower system in fluid communication with the test chamber;

a temperature controller in communication with the temperature sensors and the blower system, wherein the controller receives data from the first temperature sensor and the second temperature sensor and controls the blower system in response to the data received from the temperature sensors.

2. The apparatus of claim 1, further comprising a timer in electrical communication with the lamp, whereby the lamp can be cycled to simulate day or night.

3. The apparatus of claim 1, further comprising a humidifier in fluid communication with the test chamber, a humidity sensor in or adjacent the test chamber and a humidifier controller in communication with the humidity sensor and the humidifier.

4. The apparatus of claim 3, further comprising a timer in electrical communication with the lamp, whereby the lamp can be cycled to simulate day or night.

5. The apparatus of claim 1, wherein the lamp comprises a xenon lamp.

6. The apparatus of claim 1, wherein the specimen support is adapted to support the associated test specimen at an angle less than 10° from horizontal.

7. The apparatus of claim 1, further comprising a dimmer in electrical communication with the lamp to control the irradiance of the lamp and an irradiance sensor disposed in the test chamber and in electrical communication with the dimmer.

8. The apparatus of claim 1, further comprising, a heater in communication with the test chamber, wherein the temperature controller is in communication with the heater.

9. The apparatus of claim 8, wherein the first temperature sensor comprises an air temperature sensor and the second temperature sensor comprises a black panel sensor.

10. The apparatus of claim 8, wherein the blower system includes a blower and damper.

11. The apparatus of claim 8, wherein the blower system includes two blowers.

12. The apparatus of claim 11, wherein the temperature controller communicates with one of the two blowers to control the blower in response to data received from the black panel sensor and the temperature controller communicates with the other one of the two blowers to control the other blower in response to data received from the air temperature sensor.

13. The apparatus of claim 11, wherein the temperature controller communicates with heater in response to data received from the air temperature sensor.

14. The apparatus of claim 8, wherein the temperature controller is adapted to control the blower system and heater to allow for the cycling of temperature.

15. The apparatus of claim 1, further comprising a second dispenser adapted to connect to an associated water source.

16. The apparatus of claim 1, wherein the first dispenser comprises a nozzle for spraying the associated test specimens.

17. The apparatus of claim 16, further comprising a timer in electrical communication with the lamp, whereby the lamp can be cycled to simulate day or night.

18. The apparatus of claim 16, further comprising a temperature sensor disposed in or adjacent the test chamber, a heater in communication with the test chamber, a blower system in fluid communication with the test chamber and a temperature controller in communication with the temperature sensor, the heater and the blower system, wherein the temperature controller is adapted to control the blower system and heater to allow for the cycling of temperature.

19. In an accelerated weathering apparatus having a test chamber, a specimen support disposed in the test chamber, a lamp emitting radiation into the test chamber, a timer in electrical communication with the lamp, a temperature sensor disposed in or adjacent the test chamber, an air heater in communication with the test chamber and a fluid dispenser, a method for generating the effect of a corrosive solution on a test specimen, the method comprising:

positioning the test specimen at least substantially horizontally on the specimen support;

wetting the test specimen with a corrosive solution such that drops form on a surface of the test specimen;

selectively emitting radiation from the lamp towards the test specimen; and

controlled drying of the test specimen.

20. The method of claim 19, wherein the step of wetting further comprises spraying the test specimen with the corrosive solution.

21. The method of claim 20, further comprising wetting the test specimen with water.

22. The method of claim 19, wherein the step of controlled drying further comprises controlling the air temperature in the test chamber.

23. The method of claim 22, wherein the step of controlled drying further comprises cycling the air temperature in the test chamber between at least two temperatures.

24. The method of claim 22, wherein the step of controlled drying further comprises controlling the black panel temperature in the test chamber.

25. The method of claim 24, wherein the step of controlled drying further comprises cycling the black panel temperature between at least two temperatures.

26. The method of claim 24, wherein the step of controlled drying further comprises controlling the air temperature and the black panel temperature in the test chamber using a multiple blower system.

27. The method of claim 24, wherein the step of controlled drying further comprises controlling the air temperature and the black panel temperature in the test chamber using a blower and damper system.

28. The method of claim 19, wherein the step of controlled drying further comprises controlling the relative humidity inside the test chamber.

29. The method of claim 19, wherein the step of selectively emitting radiation further comprises emitting UV radiation.

30. The method of claim 29, wherein the step of selectively emitting radiation further comprises cycling the lamp in dark and light cycles.

31. The method of claim 19, wherein the step of wetting the test specimen comprises wetting the test specimen with a solution that simulates acid rain.

APPENDIX

1. An apparatus for wetting and drying test specimens, the apparatus comprising:

a test chamber;

a lamp capable of generating UV radiation in the test chamber;

a first dispenser adapted to connect to an associated liquid ~~solution~~ source ~~other than water~~, the first dispenser being disposed in the test chamber;

a controller in communication with the first dispenser for controlling the dispenser; and

a specimen support disposed in the test chamber for supporting an associated test specimen ~~in at least a substantially horizontal orientation~~, wherein the specimen support is disposed in relation to the lamp such that radiation emitted from the lamp contacts the associated specimen supported by the specimen support, wherein the specimen support is disposed in relation to the first dispenser such that liquid dispensed from the first dispenser contacts the associated specimen supported by the specimen support ~~to form drops on the specimen and wherein the specimen support is shaped to allow excess liquid to run off the associated specimen so that the associated specimen is not immersed in the associated liquid solution.~~;

a first temperature sensor disposed in or adjacent the test chamber;

a second temperature sensor disposed in or adjacent the test chamber;

a multiple blower system in fluid communication with the test chamber;

a temperature controller in communication with the temperature sensors and the blower system, wherein the controller receives data from the first temperature sensor and the second temperature sensor and controls the blower system in response to the data received from the temperature sensors.

2. The apparatus of claim 1, further comprising a timer in electrical communication with the lamp, whereby the lamp can be cycled to simulate day or night.

3. The apparatus of claim 1, further comprising a humidifier in fluid communication with the test chamber, a humidity sensor in or adjacent the test chamber and a humidifier controller in communication with the humidity sensor and the humidifier.

4. The apparatus of claim 3, further comprising a timer in electrical communication with the lamp, whereby the lamp can be cycled to simulate day or night.

5. The apparatus of claim 1, wherein the lamp comprises a xenon lamp.

6. The apparatus of claim 1, wherein the specimen support is adapted to support the associated test specimen at an angle less than 10° from horizontal.

7. The apparatus of claim 1, further comprising a dimmer in electrical communication with the lamp to control the irradiance of the lamp and an irradiance sensor disposed in the test chamber and in electrical communication with the dimmer.

8. The apparatus of claim 1, further comprising ~~a temperature sensor disposed in or adjacent the test chamber~~, a heater in communication with the test chamber, ~~a blower system in fluid communication with the test chamber and a~~ wherein the temperature controller is in communication with ~~the temperature sensor,~~ the heater ~~and the blower system~~.

9. The apparatus of claim 8, wherein the first temperature sensor ~~includes at least one of~~ comprises an air temperature sensor and the second temperature sensor comprises a black panel sensor.

10. The apparatus of claim 8, wherein the blower system includes a blower and damper.

11. The apparatus of claim 8, wherein the blower system includes two blowers.

12. The apparatus of claim 11, wherein the temperature controller communicates with one of the two blowers to control the blower in response to data received from the black panel sensor and the temperature controller communicates with the other one of

the two blowers to control the other blower in response to data received from the air temperature sensor.

13. The apparatus of claim 11, wherein the temperature controller communicates with heater in response to data received from the air temperature sensor.

14. The apparatus of claim 8, wherein the temperature controller is adapted to control the blower system and heater to allow for the cycling of temperature.

15. The apparatus of claim 1, further comprising a second dispenser adapted to connect to an associated water source.

16. The apparatus of claim 1, wherein the first dispenser comprises a nozzle for spraying the associated test specimens.

17. The apparatus of claim 16, further comprising a timer in electrical communication with the lamp, whereby the lamp can be cycled to simulate day or night.

18. The apparatus of claim 16, further comprising a temperature sensor disposed in or adjacent the test chamber, a heater in communication with the test chamber, a blower system in fluid communication with the test chamber and a temperature controller in communication with the temperature sensor, the heater and the blower system, wherein the temperature controller is adapted to control the blower system and heater to allow for the cycling of temperature.

19. In an accelerated weathering apparatus having a test chamber, a specimen support disposed in the test chamber, a lamp emitting radiation into the test chamber, a timer in electrical communication with the lamp, a temperature sensor disposed in or adjacent the test chamber, an air heater in communication with the test chamber and a fluid dispenser, a method for generating the effect of a corrosive solution on a test specimen, the method comprising:

positioning the test specimen at least substantially horizontally on the specimen support;

wetting the test specimen with a corrosive solution such that drops form on a surface of the test specimen;

selectively emitting radiation from the lamp towards the test specimen; and

controlled drying of the test specimen.

20. The method of claim 19, wherein the step of wetting further comprises spraying the test specimen with the corrosive solution.

21. The method of claim 20, further comprising wetting the test specimen with water.

22. The method of claim 19, wherein the step of controlled drying further comprises controlling the air temperature in the test chamber.

23. The method of claim 22, wherein the step of controlled drying further comprises cycling the air temperature in the test chamber between at least two temperatures.

24. The method of claim 22, wherein the step of controlled drying further comprises controlling the black panel temperature in the test chamber.

25. The method of claim 24, wherein the step of controlled drying further comprises cycling the black panel temperature between at least two temperatures.

26. The method of claim 24, wherein the step of controlled drying further comprises controlling the air temperature and the black panel temperature in the test chamber using a multiple blower system.

27. The method of claim 24, wherein the step of controlled drying further comprises controlling the air temperature and the black panel temperature in the test chamber using a blower and damper system.

28. The method of claim 19, wherein the step of controlled drying further comprises controlling the relative humidity inside the test chamber.

29. The method of claim 19, wherein the step of selectively emitting radiation further comprises emitting UV radiation.

30. The method of claim 29, wherein the step of selectively emitting radiation further comprises cycling the lamp in dark and light cycles.

31. The method of claim 19, wherein the step of wetting the test specimen comprises wetting the test specimen with a solution that simulates acid rain.

~~32. In an accelerated weathering apparatus having a test chamber, a specimen support disposed in the test chamber, a lamp powered by a power source controlled by a ballast, an air temperature sensor disposed in or adjacent the test chamber, a black panel temperature sensor disposed in the test chamber, an air heater in communication with the test chamber, a humidifier in fluid communication with the test chamber and a blower system in communication with the test chamber, a method for accelerated weather testing of a test specimen, the method comprising:~~

~~positioning a test specimen in the test chamber;~~

~~wetting the test specimen in the test chamber;~~

~~selecting a desired chamber air temperature;~~

~~selecting a desired black panel temperature;~~

~~selecting a desired chamber relative humidity;~~

~~sensing the black panel temperature;~~

~~sensing the chamber air temperature;~~

~~sensing the chamber relative humidity;~~

~~comparing the sensed black panel temperature to the desired black panel temperature;~~

~~comparing the sensed chamber air temperature to the desired chamber air temperature; and~~

~~in response to the comparing steps, adjusting the blower system.~~

~~33. The method of claim 32, wherein the positioning step comprises positioning the test specimen less than about 15° from horizontal.~~

~~34. The method of claim 32, further comprising comparing the sensed chamber relative humidity to the desired relative humidity and adjusting the humidifier in response thereto.~~